

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3171617**Date:16-01-2023****Subject Name:Applied Machine Learning****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) What is Machine learning? List out types of machine learning?	03
(b) Define basic terms : Experiment, Sample space, Event, Probability.	04
(c) A manufacturing process produces thousands of capacitor per day. Every hour, supervisor selects a random sample of 50 capacitor and classifies each capacitor in the sample as conforming or non – conforming. Find the probability of finding one or fewer nonconforming parts of capacitor.	07
Q.2 (a) Explain Bays theorem with example.	03
(b) A box contains five white balls, 6 blue balls and three yellow balls. A ball is drawn at random. Find probability that: 1) Ball is not yellow 2) Ball is either white or yellow In the second random experiment if two balls are drawn in succession, then what is the probability that the second ball is blue if the first ball is white? Pg 5-7	04
(c) A population consists of six numbers 4,8,12,16,20,24 .consider all samples of size two which can be drawn without replacement from this population. Calculate following : i) The Population mean ii) The population standard deviation iii) The mean of the sampling distribution of means	07
OR	
(c) Write a short note on Hypothesis testing.	07
Q.3 (a) Write a short note on linear regression.	03
(b) Write a difference(s) between supervised and unsupervised learning.	04
(c) Write steps for decision tree algorithm. List out pros and cons of it.	07
OR	
Q.3 (a) If S is a collection of 20 examples with 12 YES and 8 No examples then calculate entropy.	03
(b) Define: Clustering. List out desirable properties of clustering.	04
(c) Explain SVM classification with example.	07
Q.4 (a) What are factors influencing Backpropogation training?	03
(b) What is Association Rule Learning? List out algorithms of it.	04
(c) Define: Perceptron. How does Perceptron work?	07

OR

- Q.4** (a) What is TensorFlow? **03**
(b) Define : Training set, validation set and Testing set **04**
(c) Explain in brief types of activation functions used in machine learning. **07**
- Q.5** (a) How does regularization reduce overfitting? **03**
(b) Write a short note on deep learning. **04**
(c) What is Convolutional Neural Network (CNN)? Explain in detail about various layers of CNN. **07**
- OR**
- Q.5** (a) Explain types of Adversarial Attacks. **03**
(b) Write differences between CNN and RNN. **04**
(c) How does deep reinforcement learning work? **07**
